

12-3-8



AGC2E000333

Leamington Plant
Dioxin Release Estimate

INSTRUCTIONS: This worksheet is to be used to enter laboratory information from Xenobiotic Labs and plant information (proposed usage rate and stack flow) for evaluating whether a given material will cause stack emissions in excess of the PC MACT dioxin standard. The theory behind this calculation assumes dioxin and furan compounds present in raw mix, when introduced to the kiln system pyroprocess, will sublime at a temperature around 450 to 500 degrees F and exit the system out the kiln stack. By knowing the mass loading of dioxin entering the system, and the stack exit gas flow rate, one can calculate theoretical emissions of dioxins and dioxin-like compounds and compare this value to the PC MACT standard of 0.2 ng/dscm TEQ. To use this spreadsheet, enter sample data, sample results, proposed plant use data, and a conservative stack flow rate estimate in the orange-colored cells (be sure and use values that corresponds to the correct units).

XENOBIOTIC LABS SAMPLE IDENTIFICATION INFORMATION

Sample ID #: 040170471001
Client ID: SUMMIT
TEQ (ppt) PCDD/PCDF: 52.416

ASH GROVE PLANT INFORMATION

maximum usage rate (ton/hr): 0.14
stack flow (dscf/min): 100000

Theoretical Dioxin Emission Calculation:

$$\frac{\text{ng (TEQ)}}{\text{dscm}} = \frac{52.416 \text{ part}}{\text{trillion}} \times \frac{0.1 \text{ ton}}{\text{hour}} \times \frac{1}{1.00\text{E}+12} \times \frac{2000 \text{ lb}}{\text{ton}} \times \frac{1.00\text{E}+09 \text{ ng}}{\text{g}} \times \frac{\text{min}}{100000 \text{ dscf}} \times \frac{35.32 \text{ dscf}}{\text{dscm}} \times \frac{\text{hr}}{60 \text{ min}} \times \frac{454 \text{ gm}}{\text{lb}}$$

= 0.039 Acceptable Material